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DAUBENTON'S BAT, *VESPERTILIO DAUBENTONII*, LEISLER.

BY THE EDITOR.

PLATE II.

WE are indebted to Mr. Edward Hart, of Christchurch, for a specimen of this Bat, in the flesh, captured in his neighbourhood, and from this the illustration, issued inadvertently with our last number, was drawn by Mr. Lodge.

Although usually regarded as one of the rarer British Bats, it has probably either escaped particular observation or has been perhaps mistaken for some other species. Indeed the various captures of specimens referred to in the second edition of Bell's 'British Quadrupeds' (1874), and the many additional notes of its occurrence which we have collected, lead to the conclusion that it is entitled to be considered locally common; for where it does occur it is by no means solitary, but is found in some numbers. This was observed by Mr. Tomes to be particularly the case in Warwickshire, where he has seen hundreds flying over the Avon at Stratford, and has taken more than twenty at a time from the belfry of Stratford Church. Mr. Borrer also found great numbers of this Bat in the church at Christchurch, Hants, where in one chamber communicating with an aperture in the north wall, through which they passed to and from the river, their accumulated excrement was "knee-deep." He had no difficulty in procuring as many specimens as he wanted. On several evenings afterwards he saw numbers flitting, much in the manner



of Sand Martins, over the surface of the river near the bridge in the town, never appearing to rise very high in the air, and seldom flying much beyond the river-banks. He adds (Zool. 1874, pp. 4127, 4128) that in April, 1856, he obtained this species from the Isle of Purbeck, and in July, 1863, from Ulleswater, where (as well as at Grasmere) they do not fly till late at night over the lakes, but in the boat-houses they fly by day. He has also seen specimens taken at Preston, near Brighton, a locality in which he would not have expected them, as they appear to be especially addicted to water, and there is none there. Before quitting the Isle of Purbeck, it may be well to note another locality for this Bat in the same county of Dorset, namely, Glanville's Wootton, where Mr. J. C. Dale, in his account of the local fauna, states that it is abundant. From the Isle of Wight it has been reported by the Rev. C. A. Bury, and it is probably the species referred to by Mr. W. P. Cocks, under the name *Vespertilio emarginatus*, as not uncommon in the neighbourhood of Falmouth, *V. emarginatus* of Jenyns being identical with *V. daubentonii* of Leisler and Kuhl, but not with *V. emarginatus* of Geoffroy, a continental species (with a longer, more pointed, and more deeply emarginate ear) which has not yet been found here. Amongst other localities for *V. daubentonii* Bell gives Milton Park, near Peterborough, and even mentions its occurrence in London, at Islington, whence three examples were procured by Yarrell. To these may be added another locality near London, namely, Kingsbury Reservoir, where we have seen it flying over the water near the Hyde bridge, and where, to identify the species, we shot one about seven o'clock one evening in August, 1867. Another, in the collection of Mr. Bond, was found clinging to the wall at the head of this same reservoir one cold wet day in summer. On turning to an old note-book of that date we find the following entry:— "Daubenton's Bat seen at the Hyde bridge on the Brent several times. Frequents stagnant water. Flies very late; is slower on the wing than most of the other Bats. Wings more pointed, and does not turn and twist like many, but skims like a Sand Martin over the water." This peculiarity seems to have struck most people who have had an opportunity of obtaining it alive. Mr. Tomes, writing in 1874 of its habits, as observed by him in Warwickshire, says:—"So peculiar are the vespertinal habits of this species that, while very abundant, an ordinary observer might

be quite unconscious of its existence. It is essentially an aquatic species, if such an expression be admissible applied to an animal which never enters the water. It haunts that element continually, flying so near its surface as to render it difficult to distinguish between the creature itself and its reflection. The flight, quivering and slow, is performed by very slight but rapid strokes of the wings; it may, indeed, be said to vibrate rather than fly over the surface of the water. It could not well fly in any other manner so near the surface of the water without striking it, and this it seldom or perhaps never does, although it often pauses to dip its nose into the water, whether to drink or pick up some floating food we have been unable to ascertain."

According to the observations of Dr. Laver, of Colchester, this Bat is not rare in his neighbourhood. Doubleday procured it at Epping, and observed it flying over the river at Sudbury.

At Easton, in Norfolk, it has been noted by Mr. Gurney, and we have the authority of Mr. F. Bond for stating that specimens have been taken at Carlisle. Bell states that the most northern locality for this species in England known to him is Durham, where the specimens of *Vespertilio ædilis*, Jenyns, subsequently identified with *V. daubentonii*, were obtained. But not only is Carlisle somewhat further north, but we find this Bat included in Messrs. Meynell and Perkins' 'Catalogue of the Mammalia of Northumberland and Durham,' where it is stated to have been met with at Darlington, Shotley Bridge, Auckland St. Andrew, and Long Benton.

As regards Northumberland, also, the late Mr. Selby, in one edition of his 'Fauna of Twizel,' doubtfully included *V. emarginatus*, by which name the present species was probably intended.

In Scotland Daubenton's Bat appears to be pretty widely distributed on the mainland, but to be local. It was first correctly identified as a Scottish species by William Macgillivray, who, in 1840, captured a specimen in Aberdeen Cathedral (Edinb. New Phil. Journ. xxxi. p. 205), where subsequently John Macgillivray found eighty in two large clusters (Ann. Mag. Nat. Hist. viii. p. 230), and in the same county a specimen was taken by the Rev. G. Gordon in the church of Peterculter. It was probably this species which Fleming got in Fifeshire (Hist. Brit. An. p. 6), and referred to as having been taken near Dover by M. Brogniart,

although he named it *Vespertilio emarginatus*, Geoffroy. Subsequently Macgillivray met with it in Dumfriesshire (Nat. Libr. xxii. p. 95), and Robert Gray noted it in Kirkcudbright. One in the Glasgow University Museum was captured on Glasgow Green, as recorded by the late Edward Alston (Proc. Nat. Hist. Soc. Glasgow, i. p. 203), who subsequently examined another, which had been taken in the West End Park, Glasgow.

Thomas Edward, in his list of the Mammals of Banffshire, appended to Smiles' 'Life of a Scotch Naturalist' (p. 392), includes Daubenton's Bat as one of the two species recognized by him in Banffshire, the other being the Pipistrelle. A third species, "larger than either of the other two," is mentioned as having been "met with in woods," but not identified. It was most probably *Plecotus auritus*.

Fleming, in his 'History of British Animals' (p. 6), identified the *Vespertilio auriculatus* of Walker's 'Fauna Scotica'* with the Noctule; but, as pointed out by Alston, the description agrees much better with *V. daubentonii*.

As regards Ireland, Bell states that the occurrence of Daubenton's Bat in *two* localities has been established, namely, in Donegal and Kildare (Proc. Nat. Hist. Soc. Dublin, ii. p. 154), but he has omitted to notice the specimen mentioned by Thompson (Nat. Hist. Ireland, iv. p. 2) as having been obtained by the Ordnance collectors in the Co. Londonderry, and determined by Mr. Jenyns (now Blomefield). Since that date, probably, it may have been recognized in other parts of Ireland, and it would be satisfactory to receive information on this point.

The difficulty of identifying any uncommon species of Bat was at one time considerable, owing to the want of properly authenticated specimens for comparison, and the absence of published descriptions which indicated distinctive characters with sufficient clearness. Now things are different. Specimens properly named may be found in most museums; and the publication of Mr. Dobson's excellent 'Catalogue of the Chiroptera in the Collection of the British Museum' has furnished students of Zoology with a reliable guide for the determination of any species they are likely to meet with.

Turning to the Analytical Table, or Synopsis, of the species

* Published in his 'Essays on Natural History,' p. 472.

belonging to the genus *Vespertilio*, given at pp. 285—289 of this work, we find the genus divided into two sections, or subgenera, which are thus characterised:—

I. Subgen. LEUCONOE.

Feet very large; wing-membrane from the tibia or ankle, rarely from the side of the foot; interfemoral membrane forming a very acute angle in the centre of its free margin behind; tail projecting by the last vertebra, or by the last two vertebræ, from the membrane; calcaneum very long, extending at least three-fourths the distance between the ankle and the tail.

To this subgenus belongs *V. daubentonii*.

II. Subgen. VESPERTILIO.

Feet moderate; wing-membrane from the base of the toes, rarely from the metatarsus; interfemoral membrane forming an obtuse angle in the centre of its free margin behind; tail wholly contained in the membrane, or projecting by its extreme tip only; calcaneum extending about half-way between the ankle and the tail.

To this subgenus belong *V. emarginatus*, Geoffroy (not *emarginatus*, Jenyns, which is *daubentonii*, Leisler and Kuhl), *V. nattereri*, *V. bechsteinii*, *V. murinus*, and *V. mystacinus*.

In the Synopsis above referred to, *V. daubentonii* is thus specially characterised (p. 286):—

“Wings from the metatarsi. The second lower premolar stands in the tooth-row, or is partially drawn inwards. The second upper premolar stands in the tooth-row, or with the first is partially drawn inwards. The ear laid forward does not extend beyond the end of the muzzle; fore-arm, 1.45 in.”

The more detailed description given by Mr. Dobson (p. 297) is as follows:—

“Head very slightly raised above the face-line; ears moderately long, laid forwards the tips extend quite to the extremity of the muzzle; the inner margin forms a regular arc of a circle from the base to the tip, which is shortly rounded off; and the upper third of the outer margin is flat or concave, owing to the abrupt convexity of the succeeding middle third; tragus about half the length of the ear, the extremity straight, not curved outwards; the inner margin is straight, the outer has a very

distinct triangular rounded lobe at the base, then becomes regularly slightly convex upwards, reaching its greatest width about the middle, and terminating in an acute point.

“Wings from the metatarsi; calcaneum extending more than three-fourths the distance between the ankle and the tail.

“The face is sparingly covered with hair in front of the ears. The small labial glands are thinly clothed by some long straight hairs.

“On the dorsal surface the base of the interfemoral membrane, as far as a line drawn between the centres of the tibia, is covered; the tibiæ and the remaining part of the interfemoral naked.

“Above, the hairs are dark at the base, with reddish brown extremities; beneath, similar at the base, but with white extremities.

“The upper incisors are equal in size, and have strongly diverging cusps; the second upper premolar stands in the tooth-row, is very small, not one-third the size of the first premolar, and its summit very slightly exceeds the cingulum of the first molar.

“Length (of an adult male preserved in alcohol):—Head and body, 1·9 in.; tail, 1·7 in.; head, 0·65 in.; ear, 0·55 in.; tragus, 0·28 in.; fore-arm, 1·45 in.; thumb, 0·35 in.; third finger, 2·4 in.; fifth finger, 1·9 in.; tibia, 0·6 in.; foot, 0·4 in.”

Generally speaking, the characters most likely to strike a beholder upon a superficial examination are the large feet, moderate-sized rounded ears, pointed wings, and elongated caudal vertebræ. Its peculiar mode of flight and partiality for water, already referred to, may serve as a hint to collectors in search of specimens.

NOTES ON THE RARER BIRDS OF GLAMORGANSHIRE.

BY DIGBY S. W. NICHOLL, F.L.S.

In his ‘Birds of Somersetshire’ Mr. Cecil Smith has enumerated no less than 217 species, whilst several additional species, which have occurred since his book was published in 1869, will be found mentioned in ‘The Zoologist’ for 1888 (p. 174).

Somerset, as well as Glamorgan, is washed by the waters of the Bristol Channel, and consequently both counties offer

exceptional chances for the occurrence of some of our rarer marine birds. On the other hand Somerset possesses, in the Mendips and the Quantock range of hills, suitable places for such species, as, for instance the Golden Plover, to breed, and Mr. Smith mentions the fact that a few are said to do so in the wild country near Dunkery Beacon and Exmoor.

In Glamorgan I have not been able to ascertain that the Golden Plover is more than a winter visitor, making its appearance in numbers varying with the severity of the weather. The Grey Plover is occasionally shot or seen on the coast in winter.

After a great deal of correspondence with competent authorities on the subject, together with my own observations, I am able to claim for Glamorganshire no less than 218 species, being one more than the number given for Somersetshire by Mr. Smith when he published his book on the birds of that county.

As an accidental visitor the White-tailed Eagle has occurred several times. I have records of nine such occurrences, only four of which, however, are in my opinion reliable.

Two examples of the Goshawk, and three of that rapidly-decreasing bird the Kite have been obtained. In 'The Zoologist' (1888, p. 188) will be found an interesting letter on the "Kite in Glamorganshire," received by me from Lord Aberdare.

On the authority of the Rev. H. Morgan-Stratford, Rector of St. Athan, near Cowbridge (than whom no one is better acquainted with the avifauna of the county), I am able to include the Little Owl, a specimen of which was shot by him some few years ago, but unfortunately he has forgotten the date.

The Eagle Owl is recorded as having occurred near Swansea, by Mr. Dillwyn, in his 'Fauna and Flora of Swansea,' and by Mr. Harting, in his 'Handbook of British Birds' (1872, p. 95).

Passing on from the Owls to the Shrikes, we have Pallas's Shrike, *Lanius major*, a specimen of which (now in the Cardiff Museum) was obtained at Bridgend in April, 1881.

There is next to be noticed the Great Grey Shrike, *Lanius excubitor*, which is only an irregular winter visitant; and then two of our summer visitors, namely, the Pied Flycatcher and the Golden Oriole.

I have recorded in 'The Zoologist' (1888, p. 229) that on the 8th of May I obtained a male specimen of the Pied Flycatcher, and I believe it is the only authentic occurrence of the species in

this county, for on reference to the 'Fauna and Flora of Swansea' it will be seen that the author was not at all satisfied with the evidence submitted to him with respect to its occurrence in Glamorganshire.

That beautiful bird the Golden Oriole frequented Hendrefoilan, near Swansea, the seat of Mr. L. L. Dillwyn, M.P., throughout the summer of 1885, and I am glad to say was left unmolested. Mr. R. Drane, of Queen Street, Cardiff, tells me that this species nested at Penarth in 1863. An egg in his possession was seen by him on a string, with those of the Thrush and Blackbird, in possession of a boy, who described the nest accurately, and said that he and two others took it, and divided the five eggs it contained amongst themselves.

Another summer visitor, but with no claim to rarity, is the Ring Ouzel. It breeds annually in the hilly part of the county (where it goes by the name of the Mountain Blackbird), and specimens are taken not unfrequently in the "Vale of Glamorgan," usually young birds.

The Redstart, which is common in the adjoining county of Monmouth, is decidedly uncommon in Glamorgan, and the examples seen are few and far between.

The Black Redstart has been obtained three times, all three examples having been well authenticated.

In the article on the Nightingale in the fourth edition of Yarrell (vol. i., p. 316) there are two misprints. In the eleventh line from the top of the page "Perthkerry" should read "Porthkerry," and in the twelfth line "Boreter" should read "Boteler." The Nightingale, though local, may be heard most years in May, in the Llancadle and Castleton coverts.

On April 4th I obtained a male Cirl Bunting, *Emberiza cirrus*, at this place (the Ham, near Cowbridge). Mr. Howard Saunders, in his 'Illustrated Manual of British Birds' (p. 203), states that this species, he believes, was "unknown in Wales until Mr. E. C. Phillips obtained a male on 15th March, 1888, near Brecon." But I can record two previous occurrences of this species in Glamorganshire, one so far back as 1876. It is apparently seldom seen in these parts, being but locally distributed.

I can record one undoubted occurrence of the Tree Sparrow, *Passer montanus*, for a male was obtained by Mr. Cording, taxidermist, of Cardiff, at Waterstone, in 1882.

It is not often that Glamorganshire is favoured with a visit from that curious bird the Waxwing. Mr. R. Drane saw a flock of six or seven near Cardiff, in the winter of 1859, and has known of a single instance of its occurrence since. The Crossbill has occurred oftener.

Most winters bring a few specimens of the Snow Bunting, but rarely in full adult plumage.

Amongst other winter visitors may be mentioned the Brambling, Siskin, and Twite, and occasionally the Hawfinch.

Two specimens of the Rose-coloured Pastor are noticed in the 'Fauna and Flora of Swansea,' as having occurred near there in 1836 and 1837.

The Rusty Grackle, *Scolecophagus ferrugineus*, a North American species, was shot on the East Moors, near Cardiff, on October 4th, 1881. My informant, Mr. R. Drane, of Cardiff, tells me that its plumage was in a perfect state, showing, in his opinion, that it was not an escaped cage-bird: this, however, is by no means conclusive.

Mr. Howard Saunders, writing to me about a specimen of the Red-winged Starling which was killed by flying against the Nash Light, says, "No doubt it was an escaped bird from some Bristol-bound vessel," and this may have been the case with the last-named.

The Chough is still to be found in moderate numbers upon the Gower coast, but I have never heard of its having been seen further eastward.

The Raven breeds annually in the cliffs between Aberthaw and Dunraven, and the Hooded Crow has been obtained on several occasions.

Mr. E. C. Phillips, in his 'Birds of Breconshire,' says he has seen but one stuffed specimen of the Nutcracker, *Nucifraga caryocatactes*, in Wales, and that was a bird in perfect plumage killed in Glamorganshire many years ago, so I am able to include it.

Seven well-authenticated specimens of the Hoopoe can be claimed for the county, two of which are recorded by Mr. Dillwyn in his 'Fauna and Flora of Swansea.'

On November 19th, 1885, a female example of the Little Bustard was obtained near Gileston, and is now in the collection of the Rev. H. Morgan-Stratford, Rector of St. Athan. This is the only example that I have known to occur in Glamorganshire.

The Great Plover, or Thick-knee, is also rare in the county, only one occurrence—near Swansea in 1885—having come to my knowledge.

The Greenshank and Spotted Redshank occur but rarely ; the Common Redshank is very numerous along the coast, during the winter months especially.

The Green Sandpiper occurs occasionally, the last occurrence that I know of being one shot by myself on the 4th January last, and recorded by me in 'The Zoologist' (1889, p. 73).

Amongst other occasional visitors may be mentioned the Curlew and Purple Sandpipers, the Little Stint, Grey Phalarope, and Great Snipe.

An example of the Red-breasted Snipe was shot by Mr. Llewelyn on Penllergare Common. Whilst it was at Leadbeater's, the late Mr. Gould saw it (in the flesh), and identified the species.

There are three Heronries in the county, namely, at Hensol, Margam, and Penrice.

Mr. Cording, taxidermist, of Cardiff, tells me that a female example of the Night Heron was shot at Peterstone, near Cardiff, in 1880. Mr. R. Drane notes the occurrence of the Common Bittern six or seven times during the last twenty-five years, and I am able to record five examples of the Little Bittern, one being quite a young bird, found dead under the telegraph-wires, by flying against which it had probably been killed: from this it would appear that its parents had bred in the neighbourhood.

I now come to the Little Crane: Mr. Dillwyn has recorded one, taken by hand on the Afon River in 1839, which is (or was) preserved at Margam.

Of the *Anatidæ* the Geese and Ducks form a good portion on the Glamorganshire list. The species of Geese (all, with the exception of the Egyptian Goose, of which six well-authenticated specimens have occurred) being more or less frequent winter visitants, they include the Grey Lag, White-fronted, Bernicle, Brent, and Bean Geese; also the Canada Goose, which is kept in a state of domestication on the lakes at Penllergare.

The Ducks consist of the Wild Duck or Mallard, the Gadwall, Shoveller, Pintail, Wigeon, Teal, and Garganey; also the Pochard, Ferruginous Duck, Scaup, Tufted Duck, and Goldeneye, and the Smew, Common and Velvet Scoters.

The Ferruginous Duck is recorded by Mr. Dillwyn in his

'Fauna and Flora of Swansea,' and Mr. L. L. Dillwyn, M.P., tells me that he has seen examples of the Surf Scoter more than once in game-shops at Swansea, in hard winters.* He also saw one swimming in the surf off the rocks beyond Caswell Bay, in Gower, and he observed it carefully with the aid of a glass.

Sir R. Payne-Gallwey, in his 'Book of Duck Decoys' (p. 93), has given a description of the only decoy in Glamorgan, namely, the one at Park Wern, the property of Sir H. Hussey Vivian, Bart., M.P. From this decoy Sir H. Vivian has received specimens of the Gadwall.

The Garganey is of rare occurrence. I possess two specimens, obtained near here in 1886, and have records of seven others.

The Shoveller also, though met with far more frequently than the Garganey, must still be called rare.

Mr. L. L. Dillwyn, M.P., informs me that a Hooded Merganser was killed during the hard winter of 1838, but he omitted to state where.

The Whooper or Wild Swan occurs in severe winters, but not in any great numbers.

The Red-throated Diver is recorded by Mr. Dillwyn in his 'Fauna and Flora of Swansea,' while the Red-breasted Merganser, Goosander, Great Northern Diver, and the Great-crested, Red-necked and Slavonian Grebes are also of occasional occurrence.

Among the *Alcidæ* is the Little Auk. Two are mentioned by Mr. Dillwyn in his previously-mentioned work; and one was shot by the Rev. H. Morgan-Stratford, at the mouth of the Thaw, in January, 1856.

The *Laridæ* are the last to be dealt with: they include the Arctic and Common Terns, the Lesser and Black Terns (both of which I give on Mr. Drane's authority), the Greater and Lesser Black-backed Gulls, and the Ivory Gull, one of which was seen by Sir H. H. Vivian, flying about over a piece of water which he has near Fairwood Moor, in Gower: he tried to secure it, but failed. There is also a record of one seen by Mr. H. Dillwyn (son of Mr. L. L. Dillwyn, M.P.), in Swansea Harbour, about the year 1883.

The occurrence of the Little Gull in March, 1885, and again in November, 1888, has been noted by me in 'The Zoologist' (1889, pp. 25 and 77).

* Most likely the Velvet Scoter is intended.—ED.

Occasionally the Common Skua may be seen off the Worm's Head, on the coast of Gower. Three examples of Richardson's Skua have been obtained.

The Manx Shearwater occurs occasionally.

One specimen of Leach's Petrel was picked up some years ago on the beach at Gileston, and is now in the collection of the Rev. H. Morgan-Stratford.

With that tiny mite of a web-footed bird, the Storm Petrel, this list of the rarer Glamorganshire birds closes. Examples of the Storm Petrel are not unfrequently driven inland during boisterous weather, and a gale in October, 1881, drove many of these birds inland, and one was picked up in an exhausted state at Llantrissant.

If any reader of these Notes can add to, or in any way help in rendering the avifauna of this county more complete, I should indeed be glad, for as yet there is no book published on the Birds of Glamorganshire.

THE STATUS OF THE FIRECREST AS A BRITISH BIRD.

By J. H. GURNEY, JUN., F.Z.S.

THE Firecrest was introduced into the list of British Birds fifty-seven years ago, by the Rev. Leonard Blomefield (then Jenyns), on the strength of an example caught by a cat near Cambridge. The bird was a young one, killed in August, and is doubtless that described in the following terms on p. 114 of that author's 'Manual of British Vertebrate Animals':—

"The young of the year before the first moult is only to be distinguished from those of the last species [Goldcrest] by the longer and broader bill; cheeks cinereous, without any appearance of the longitudinal streaks."

It is scarcely possible that this description can be correct as applying to a Firecrest, for Mr. Dresser in the 'Birds of Europe' (ii. p. 460), quoting from Naumann, states that the young bird just fledged has, on the sides of the head, the black and white stripes so characteristic of the Firecrest, like the adult bird, but duller; and in a nestling from Sardinia which I examined, at least one stripe was apparent. The inference is that Mr. Blomefield's bird was really a young Goldencrest, and this is strengthened

by the circumstance that August is a very unlikely month in which to find the Firecrest here.

If this be so, the example obtained in Cornwall in March, 1845, must be regarded as the first recorded British specimen, while the Cambridge bird, which has been referred to as a Firecrest by every writer on British Ornithology, should be expunged altogether from the list.

The Firecrest is a winter visitant, regularly to Cornwall, and occasionally to the rest of England, but the number of authentic records north of the Thames is small. It is strictly a winter visitant, and not one of the reported occurrences in summer can be considered as proved.

One was killed at St. Leonard's on the 9th of April, 1868, and I had it in the flesh, but this was clearly a late migrant. Another was taken in the autumn on the rigging of a ship off the coast of Norfolk, in the early part of October (Mag. of Zool. and Bot., p. 491), and some have been obtained in Sussex in that month, but these were doubtless migrants from Central Germany, whence after the breeding season a few find their way to Belgium and Heligoland, and fewer still to our own shores.

It is remarkable that it should be a winter visitant, inasmuch as it does not breed—unlike other visitors at that season—anywhere in Europe in any latitude north of England. The Firecrests which visit the British Islands probably come by a lateral migration from Germany, and this is confirmed by no less than seven having been taken in the North Sea, close to our eastern coast, *viz.*, the one already alluded to, five on another occasion ('Zoologist,' 1888, p. 225), and one brought into Yarmouth and certified by Mr. Gunn, of Norwich.

The Firecrest has been taken oftener in Cornwall than any other county; Rodd, Bullmore, and others testify to the numerous examples which have from time to time been met with. Indeed the late Mr. Vingoe, of Penzance, is the only naturalist who has described its habits in this country (Rodd, 'Birds of Cornwall,' ed. Harting, p. 43). He mentions its great shyness and tendency to concealment, and its preference for the higher branches of trees. These traits are not noticed either by Mr. Dresser or Mr. Seebohm, who have described the habits of this bird as observed in Germany and France; but something may be due to difference of locality.

Mr. Monk, of Lewes, has a case of Firecrests procured in Sussex, and very naturally mounted on a larch bough by the late Mr. Swaysland, and I have had two or three from Worthing and St. Leonard's. I do not think Mr. Saunders is over the mark in stating ('Manual,' p. 57) that it has occurred twenty times in Sussex, although there is a story of a bird-stuffer, now deceased, who sold one and the same Sussex Firecrest to ten customers! But apart from this there is no doubt that it has occurred very often in Sussex.

Other counties in which the Firecrest has been taken are Oxfordshire, Yorkshire, Kent, Shropshire (four), Suffolk, Dorsetshire (six), Berkshire, Hampshire, and Devonshire,—in fact in all the Southern and in some of the Midland counties.

The Scottish records, as Mr. Saunders justly remarks, stand greatly in need of confirmation. There is one record for Cumberland ('Birds of Cumberland,' p. 8), a bird killed with a stone and identified by the cut in 'Yarrell,' but the cut does not show the distinguishing features well, and Mr. Macpherson is not able to trace the bird, on which accordingly no absolute reliance can be placed.

Mr. Hancock states ('Cat. Birds Northumb. and Durham,' p. 75) that the only recorded occurrence in Northumberland and Durham is an erroneous one; and with regard to three shot *on one occasion* out of a flock of Goldcrests in Lancashire, by the late Mr. J. Hardy (Mitchell, 'Birds of Lancashire,' p. 19), I have a strong suspicion that these also may have been Goldcrests, knowing the way in which again and again the two species have been confounded, and the fact that the Firecrest is a visitor chiefly to the south of England.

In 'The Zoologist' for 1882 (p. 49) Mr. Phillips states that he has killed several in Breconshire; but this I imagine is a mistake, for the only authenticated Welsh specimen, available at least for examination, is in the possession of Mr. E. Bidwell, and it is therefore not unlikely that some fine male Goldcrests may in this instance have been mistaken for Firecrests. Mr. Phillips, with whom I communicated by letter, is of opinion that they were Firecrests, but it is remarkable what misapprehension still exists about the distinctive characters of these two closely allied species, though Mr. Harting has pointed out in the clearest manner ('Birds of Middlesex,' p. 56) what these characteristics are.

ORNITHOLOGICAL NOTES FROM CUMBERLAND.

BY THE REV. H. A. MACPHERSON, M.A.

SINCE August, 1888, I have spent more time than ever in working at all parts of our faunal area, but notwithstanding almost daily railway journeys to the coast, and an active correspondence, the results are not commensurate with the labour bestowed.

As regards Westmoreland, indeed, the least common birds that have come under my notice are the Bittern, Red-throated and Great Northern Divers, all killed in that county; a specimen of the second species named having been killed by telegraph-wires near Kendal, and others obtained on the coast.

With regard to Cumberland the case is brighter. The Shoveller nested with us as in previous years, and several young birds were killed by flight-shooters in August. A tolerable number of Waders visited our estuaries during that and the following month. It was numerically a poor autumn for the *Limicolæ*, Grey Plover and Bar-tailed Godwits being far less plentiful than in 1887, though I saw a very large flock of the latter species on Christmas-eve, when usually only small parties are to be seen. A few Greenshanks, Ruffs, Curlew Sandpipers and Little Stints accompanied the commoner birds. The Ruffs* I generally found associating with Peewits, and the Little Stints with Dunlins.

August 20th was a red-letter day for us, for one of our local gunners, whom I had long encouraged to search for *Totanus fuscus*, succeeded in shooting an immature specimen of that wary wader. No occurrence of this species had been authenticated in Cumberland for more than fifty years, though I know of a more recent example killed in the adjoining county, and shown to one of my friends as a "dusky retainer" (?). The late James Cooper informed Mr. Adamson that Mr. Heysham obtained one in 1829 and saw another in 1833 ('Birds of Cumberland,' p. 159); but my examination of the Heysham MSS. showed that the first bird was shot on October 13th, 1830, and that it was in 1834 that Cooper saw another.

* The occurrence of the Ruff in England in mid-winter is noteworthy as being unusual. See 'The Naturalist,' 1889, pp. 78, 79.—Ed.

Goldeneyes arrived (and were shot) on October 10th, and were as usual plentiful this winter, occurring on Derwentwater and other lakes and rivers, from Furness to the Solway, inland especially.

Pochards and Tufted Ducks, Scaups, and all the usual fowl visited us this month, a couple of Wigeon having been shot as early as August 30th.

We searched in vain for any remarkable small birds, a pretty cinnamon variety of the Common Whitethroat being the only Warbler worthy of notice. As if to compensate for disappointment, we were cheered by the detection of the Pectoral Sandpiper, *Tringa maculata* (Vieillot), three specimens of which were found near Penrith, and two were shot ('Ibis,' Jan. 1889, p. 136). We searched the rushy spot where they were found without obtaining any glimpse of the survivor.

A young Glaucous Gull and an old Velvet Scoter were seen in November, but I am glad to say escaped destruction.

Few winters or springs pass without my hearing of Wild Swans, but they are rarely shot, and when killed are generally eaten. Last December five Bewick's Swans visited a quiet sheet of water, and there two of them remained until March, when they flew northward. The other three unfortunately strayed to the coast, and were shot by a punt-gunner on Christmas-day. Two of these were cygnets, and they were subsequently staked at cards and lost! I traced the gamesters in time to find one bird plucked and headless; the other I secured, with the old one, for our local Museum. As we hung up these fine birds side by side to photograph them, the words rose to my lips—"Beautiful in their lives, in death they were not divided," the trio having been shot at one discharge as the young birds swam up to the old male for protection from a Greater Black-backed Gull that hovered menacingly overhead. The other two Swans were adults, and I showed them to several of my friends, the farmers in the district supplementing my endeavour to secure the sanctity of their asylum, while we studied their movements on every available opportunity.

A Grey Shrike, *Lanius excubitor*, was captured by a bird-catcher early in December, while striking at a call-bird, but was unfortunately killed for stuffing before I heard of it. I saw a second, and heard of one or two others. This reminds me,

en passant, that my friend Dr. Parker, of Gosforth, reported that he had seen a single Grey Shrike on a property of his, at the beginning of June.

On New Year's day was shot a Black-tailed Godwit, *Limosa melanura*, which I selected out of some Bar-tailed Godwits, all shot together with one of the numerous punt-guns that render Wild-fowl unapproachable by owners of shoulder-guns on the Solway. In January also I saw, but could not approach within gun-shot, a bird closely resembling *Larus melanocephalus*. I wrote to my friends the Manns of Aiglegill, and asked them to look out for a strange Gull. They did not turn up the doubtful bird, but a close investigation added a nice specimen of *Larus minutus* to their collection.

Other scarce birds have since occurred here,—the White-fronted Goose, Black-throated Diver and Sclavonian Grebe,—and when the number of trained observers is increased we shall hope for better things. Mr. Saunders' 'Manual' is a monthly source of pleasure to the four working men whom I supply with copies; I wish that 'The Zoologist' could circulate amongst them, to encourage their taste for Natural History.

THE SUBORBITAL PITS OF THE INDIAN ANTELOPE.

BY PROCTER S. HUTCHINSON, M.R.C.S.

It may be of interest to those who have not already noticed them to draw attention to the well-marked suborbital pits on the face of the Indian Antelope, *Antilope cervicapra*, now in the Zoological Gardens.

These pits, or glands, are found on various parts of the body in several species of Antelopes, Deer, and most Sheep and Goats, though small in the latter. They occur chiefly on the face, but are found behind the ear in the Chamois, and near the tail in the Musk-deer. They bear some relation to the reproductive functions, and are larger in the male than the female, being entirely absent in the latter in some species. Prof. Owen, in his 'Anatomy of the Vertebrates,' associates them with the various scent-glands found in the Beaver, Peccary, certain tropical Bats, the Shrew-mice, Civet-cats, Skunk, and many other animals.

The scent from these glands serves the purpose of enabling an animal to join the others of its own species, but also enables enemies to follow them; in the Skunk the awful smell given off serving as a defence from the latter when attacked. The staining of the face in deer, from the secretion of these glands, gives the appearance of weeping to the animal, and has been suggested as the origin of Shakespeare's lines on deer weeping, occurring in 'As You Like It':—

"The big round tears
Cours'd one another down his innocent nose
In piteous chase."

And again, in 'Hamlet':—

"Why, let the stricken deer go weep."

The accompanying sketch, taken from an Antelope now in the Zoological Gardens, shows the situation of the gland at a short distance below the eye, and sufficiently near for the tears to run



over into it. It will be noticed that the animal has the power of closing and opening the orifice of the gland by means of muscles. The pit is about an inch long and not very deep. It is formed by a folding in of the skin, and the secretion from the little glands opening into it is tenacious, and has a somewhat musky odour. The keeper at the Gardens told me that he had not noticed that the secretion was more copious or more odorous at one time than another, though Darwin mentions that in some deer it smells more during the rutting season.

In the female of the Indian Antelope the gland is much smaller, appearing simply as a black marking, and the animal does not appear to have the power of opening it. I have not had the opportunity of examining it very closely, but have not seen any secretion from it. These animals have not bred; the keeper tells me that the male and female fight if put in the same pen.

It was an old idea, noticed in White's 'Selborne,' that the sub-orbital pits communicated with the nose, and allowed the animal to breathe while drinking with the nose under water; but of course, as pointed out by Mr. Harting, in his edition of that book, the gland is only in the skin, and does not communicate with the nostril. The same author suggests that the fallacy of Alcmaeon, that goats breathe through their ears, may have been due to his having seen the openings of the pits behind the ears in the Chamois. In Caton's 'Deer of America,' the glands found on the legs of Reindeer, Mule-deer, Wapiti, and other deer will be found described at length. These glands are found in the male and female, and at all ages. The only advantage to the animal suggested is in enabling it to find its companions by the scent. In the Wapiti, as may be seen by inspection of those now in the Zoological Gardens, the glands are placed in a tuft of hair on the hind legs, below the hock.

NOTES AND QUERIES.

MAMMALIA.

Distribution of Plants by Frugivorous Bats.—Recently when walking in the Royal Botanic Gardens of Port-of-Spain, in company with the Superintendent, Mr. J. H. Hart, I noticed under a tree numbers of a large brown nut, about six or seven inches in circumference; these nuts evidently did not belong to the tree overhead, which bore a totally different fruit. Referring to Mr. Hart for an explanation, he informed me that it was due to the fruit-eating Bats, who resorted to favourite trees at night, bringing their food with them, and that suspended from a branch by their hind feet they fed at leisure. He further informed me that the nut I had noticed did not belong to any tree growing in the Botanic Gardens, nor to a tree that, so far as he was aware, grew in any close proximity to Port-of-Spain, and that the fruit must have been transported from some con-

siderable distance by the Bats, notwithstanding the large size and weight of the nut. Mr. Hart then drew my attention to other trees in the gardens, and on the ground beneath them were accumulations of seeds of various kinds of fruit-bearing trees, brought thither by the same agency. Years ago, when passing through the Straits of Malacca, I observed at evening-time hundreds of great fruit-eating Bats passing overhead at a high altitude, like a flight of migratory birds, from the Malayan to the Sumatran shores, and returning in the early dawn. If these animals have the same habit of carrying part of their food with them, what a wide-spread means of distributing fruit-bearing plants and trees must exist in those regions! In Trinidad these fruit-carrying Bats might easily extend their nocturnal flights to the mainland, and possibly do so. It is quite within the bounds of probability that fruit-carrying Bats have been caught up in gales of wind, and have been borne along, still clinging to their food, until by some fortuitous circumstance they reached an island at some distance from the point of departure. This may be one of the means by which seeds that will not bear long immersion in salt water have been transported to islands.—H. W. FEILDEN (Trinidad, March 16, 1889).

BIRDS.

Crossbill breeding in Co. Waterford.—The Crossbills, four of which I first noticed here on November 13th last, have continued to frequent this place throughout the winter, so that the loud rattling call-note, which they always utter on the wing, has become familiar to me and to others here. Their haunts have accordingly been watched, and the discovery was made in March of a nest, placed 37 feet from the ground, near the extremity of a lateral branch of a Scotch fir, the terminal tree of a group on the hill-slope, many other masses of old Scotch firs, with silver and larch, being in the vicinity. On the 21st March I watched with a telescope, from the high ground above the nest, the female Crossbill which was hatching. She frequently changed her position, preened her feathers, and would sometimes rise from her crouching attitude, wriggle, and turn in the nest. While watching her I heard the rattling cry, more subdued than usual, of the male, which perched on the nesting-tree. The female immediately, leaving the nest, joined him, and they flew away together for a short time, when I discovered them perched on a neighbouring tree. The female, which had evidently received some food there from her mate, then returned to the nest. On the 22nd, having learned that these birds and their nest were wanted for the British Museum, I ascended the tree to inspect the contents of the nest. To my surprise the female, which was hatching, did not move when I reached the base of the branch she was in, but sat staring at me. I then took a stick and pushed her. She resisted the pressure and tried to bite the stick. I then pushed her out of the nest, but she kept a

grip of it with her claws, and as soon as the stick slipped off her, she sank again into the nest. I then called to my servant to get above me in the tree, and look into the nest while I pushed the bird off. I renewed my efforts to dislodge the bird, which this time consented to creep to the end of the branch, but not to leave it. My man reported four eggs in the nest. Next morning, March 23rd, my servant watched near the nest for the male since before 6 o'clock. He was not long there when the call-note of the male was heard, and the female flew away with him to some distant trees and was fed. After 7 o'clock the male perched on a neighbouring tree and was shot. I then, with my servant's assistance, took the female, which sat on the nest until—after many ineffectual efforts—we got a wire noose tightened on her neck. She was in greenish yellow plumage, while the male was golden yellow, slightly inclining in some places to red, in others to green. The four eggs which the nest contained have a few bold, rounded spots and streaks of dark red-brown, with lighter reddish brown markings, chiefly towards the larger end: they contained embryos whose eyes were about the size of No. 4 shot, but I have been able to clean them out, and they, as well as the birds and nest, have been forwarded to the British Museum. The nest, which was placed between two or more minor stems in an intricate part of the branch, was well overshadowed by luxuriant tufts of the fir-needles. It was very loosely constructed, the materials forming beneath a sort of tuft hanging down between the stems that supported the sides of the nest. It was composed externally of the smaller dead twigs of Scotch and spruce fir, intermixed with dried grass and other stems, and lined with softer dried grasses. In general appearance it might remind one most of a Greenfinch's nest. On February 11th I had heard the male Crossbill singing on the top of an elm not far from where the nest was found: this song, which was subdued, had a mixed resemblance to that of some Goldfinches which were answering from a neighbouring tree, and to the notes of a Greenfinch. The female Crossbill, which alighted beside him, used her beak in climbing like a Parrot. From accounts that I have heard of Crossbills occasionally continuing to frequent places in the central counties of Iceland, as well as from their breeding having been recorded before in a few instances, it seems probable that when these strange wanderers light upon a place that suits them, as in the present instance, they stay and breed more frequently than is imagined, though they cannot be considered residents in Ireland, and are often absent for years.—R. J. USSHER (Cappagh, Co. Waterford).

The Parrot Crossbill in Ireland.—We have long been looking for the Parrot Crossbill, *Loxia pityopsittacus*, in Ireland, but it is only within the last few weeks that its occurrence here has been fully established. From the demesne of Lord Rosse, at Parsonstown, Mr. Edward Williams, of Dublin, received for preservation, in January last, a bird which seemed to

him heavier and stronger in the bill than usual; and I am glad to say that his suspicion has proved correct. Prof. Newton confirms our determination of the *sub-species*; and Mr. J. G. Millais, of the Seaforth Highlanders, now quartered in Dublin, most kindly took the trouble to have sent from London a series of Crossbills obtained by himself in Scotland, which enabled me, by comparison, to make quite sure of the name, though of course the opinion of Prof. Newton would of itself have been quite sufficient. This, the first authenticated Irish specimen of the Parrot Crossbill, was shot, as I am informed, in Parsonstown demesne, on January 12th last. The past winter has been remarkable for the number of Crossbills which have been observed in various parts of Ireland.—A. G. MORE (74, Leinster Road, Dublin).

Assumption of Male Plumage by the Female Crossbill.—On the 18th October last I received from Edenhall two Crossbills, *Loxia curvirostra*, shot out of a large flock by the son of the head keeper. They were both in the dull crimson plumage of the male; but, on careful dissection, one proved to be a female bird, the ovary being slightly enlarged. To this I may add that Crossbills were extremely numerous in this district all last summer. In November their numbers were largely increased by migratory flocks.—E. TANDY (Penrith).

Crossbills in Suffolk.—A good many Crossbills have appeared this winter in West Suffolk, more than in any season since 1867, when I can remember having seen the table of a birdstuffer's shop in Bury almost covered with recently-killed examples in various plumages. In one box of seven, sent to me from near Retford, were male birds in four quite different plumages, one being in the bright yellow-brown dress, which seems the most uncommon of all. Another male, in the red plumage, measured in the flesh $7\frac{3}{8}$ inches, and has a very powerful bill: this has been pronounced to be intermediate between the Common and Parrot Crossbill—JULIAN TUCK (Tostock Rectory, Suffolk).

Nesting of the Black Redstart in Essex.—Writing on this subject (p. 151), Mr. Miller Christy says:—"The breeding of the Black Redstart in England has been several times recorded on very doubtful grounds, but never yet satisfactorily established." As I happen to know of one authenticated case in which the eggs have been preserved, it may be worth notice. The nest I refer to was found by my father, William Jesse, whose name will be familiar to your readers as that of the naturalist who accompanied the Abyssinian Expedition under Lord Napier, and his account of the discovery, which was inserted in his collection-book at the time, is as follows:—"These specimens [*i. e.* four] were taken by myself in the garden-wall of Mr. James Parder, Braddon House. I saw both birds myself, the hen on the nest. I once saw a Black Redstart (male) killed at the Hyde

[Ingatestone, Essex] by my grandfather's gardener. My grandfather had it stuffed." Of the four eggs two are now in my possession, one was given to Mr. W. Colchester, of Grundisburg Hall, Suffolk, and the other to Mr. Harvie Brown, of Dunipace House, Stirlingshire, Sept. 18th, 1867.—WILLIAM JESSE, JUN. (Selwyn College, Cambridge).

Nesting of the Black Redstart in Durham.—In Mr. Christy's note (p. 151) on the reported nesting of this bird in Essex, he seems to be under the impression that *Ruticilla tithys* has never been known to breed in this country. Allow me to refer him to Mr. Hancock's 'Catalogue of the Birds of Northumberland and Durham' (p. 68), where it is stated that, in the year 1845, a pair of Blackstarts nested in the garden of the Rev. James Raine Crook Hall, in this city. The nest and some of the eggs were secured by the late Mr. Wm. Proctor, Sub-curator University Museum. I feel quite certain that Mr. Proctor would duly identify the birds before removing the nest and eggs, "as was his usual strict habit." Some time after, the nest and one egg were given to Mr. Hancock by the son of the rev. gentleman in whose garden the nest was found. They are to be seen in the Newcastle-on-Tyne Museum at present.—JAMES SUTTON (33, Western Hill, Durham).

[See also Sterland, 'Birds of Sherwood Forest,' pp. 67, 68.—ED.]

Woodcocks.—You ask how I came to know that Chantrey's Woodcocks did not weigh over 16 oz. apiece, as no mention is made of their weight in the Holkham Game-book. Perhaps you will allow a third party to be judge between us. My friend, whose authority I think no sportsman would be disposed to question, writes thus to me on this subject:—"The day on which Chantrey shot those two Woodcocks was the 20th November, 1829, as recorded in the Holkham Game-book, with this note:—'Amidst the events of this day it is especially worthy of being recorded that Mr. Chantrey killed *at one shot two Woodcocks*'—testified by T. W. Coke, Archdeacon Glover, J. Spencer Stanhope. Not one word is said about the weight of the Woodcocks, which, if they had scaled 1 lb. each, would surely have been mentioned as a most unusual weight. I have killed, in Lower Brittany and Devonshire, a great number of Woodcocks,—my ten or twelve a-day for years, shooting three or four days a-week,—and weighed the big ones, but never, to my recollection, killed one over 14 oz." Bewick says they generally weigh about 12 oz.; Yarrell that they vary from 7 to 14 or 15 oz., but records some heavier exceptions; and in Daniel's 'Rural Sports,' one is recorded as weighing 17 oz. Gould records that the weight of seventy out of eighty birds in fair condition will range between 11 and 14 oz., and that it is a very large cock that weighs 15 oz., and an extraordinary one that turns the scale at 16 oz. "It is my conviction," says my correspondent, "that not one in 500 weighs 1 lb. What proof then can there be," he continues to say, "that Chantrey's Woodcocks weighed 1 lb. each? I think

we may take it that we possess the strongest possible indirect testimony that they did not do so, for such rare birds would certainly have had the pæans of their weight sung in the Holkham Game-book." By way of compromise, I should be quite willing to alter the disputed passage in my letter (p. 149) in this fashion—"thus beating, I may be allowed to assume, Chantrey's feat, so far as weight was concerned."—E. W. HARCOURT (Nuneham Park, Abingdon).

Number of Eggs laid by a Magpie.—When in Cornwall this spring I found a Magpie's nest, with ten eggs in it, in an orchard (April 10th). The nest was in an apple-tree about ten feet from the ground, and not fifty yards from the house: the eggs were much incubated. This nest has been used by the same birds for certainly three, if not four years. Do not Magpies, as a rule, make a new nest every year?—WILLIAM JESSE, JUN. (Selwyn College, Cambridge).

Food of the Common Wren.—On March 28th I saw, at the brink of a nearly dry pond, a little brown Wren busily engaged with some large dark object. Holding this in its beak, it kept dashing it with great vigour against surrounding sticks and bushes, after the manner of a Kingfisher with a fish, varying this treatment with an occasional savage peck. On my approach the Wren dropped, or rather jerked away, its prize, which proved to be the case of a caddis-worm, composed of dark, sodden oak-leaves. The occupant was missing, and was, I fancy (judging by the bird's actions), successfully extracted by means of the last frantic effort.—G. T. ROPE (Blaxhall, Suffolk).

Sand Grouse in Lincolnshire.—I am sorry to say that three Sand Grouse were shot at a marsh village, Saltfleetby, near Louth, during the week ending Feb. 23rd. According to a local paper, they were shot from a flock of about 100 birds. I may add that I wrote a letter to the local paper, giving a copy of the Sand Grouse Protection Act, the existence of which, apparently, is unknown to the general public.—HENRY F. ALLISON (Beckingham, Lincolnshire).

Sand Grouse in Ayrshire.—If not already recorded, it may be of interest to readers of 'The Zoologist' to know that two Sand Grouse were picked up dead in April, 1888, near Dalrymple Station, Ayrshire, apparently killed by telegraph-wires. Another was shot by a gamekeeper at Cloncaird, Maybole, Ayrshire, on Dec. 12th, which has been preserved.—JAMES SARGENT (Nith Lodge, New Cumnock, N. B.).

Rose-coloured Pastor in Kent.—I think I may with certainty record the occurrence of a Rose-coloured Pastor here in January last. It was seen in company with some Fieldfares, and from the description given to me, the observer being very near the bird, I have not a doubt as to its

identity: the rose-colour was conspicuous, but the black on head and wings was less so: the breast was described to me as "a most beautiful rose," and the "head above the eye dark." The bird was also described as smaller than the Fieldfares with which it was feeding. About midsummer, 1888, a young Pastor, with the immature grey-brown plumage of the first year, was killed at Godmersham, some six or seven miles from Canterbury, and was at first taken for a Starling, but subsequently identified by Mr. Gordon, of the Dover Museum, who had it set up. I saw this bird, and it was most certainly a Pastor. The occurrence of these two birds in comparatively the same neighbourhood in the same year, one quite immature, the other having passed the autumn moult, seems to point to their having been bred in the locality; at least this would be a reasonable surmise if the rose feathers appear after the first autumn moult. Some years ago I obtained a fine specimen of the mature Pastor in very nearly the same neighbourhood; it was shot in a garden while eating cherries.—W. OXENDEN HAMMOND (St. Alban's Court, Wingham, Kent).

Hawks devouring their Prey on the Wing.—With regard to Mr. Henry Laver's query (p. 147), I may mention that, although I have never seen any hawk attempt to devour any bird whilst on the wing, it is to my knowledge the common habit of La Marmora's Falcon, *Falco eleanoræ*, and the Hobby, *F. subbuteo*, to devour their insect prey in this manner; and it is more than probable that one of these falcons taking a Swallow out at sea, with no perching place at hand, except perhaps the yards of a ship in motion, would so devour such like quarry. Mr. Laver mentions that the hawk specially referred to in this connection by his son was a Kestrel, in which case the Swallow must have been very tired, or the Hawk an exceptionally good flyer. I think I may confidently assert that the greater part of the food of both the European species of Kestrel is taken from the ground, whilst that of the two falcons above mentioned, as well as that of the Red-legged Falcon, *Erythropus vespertinus*, is, with few exceptions, caught in the air. If the Hobby was as good a "footer" as he is a flyer, no small bird could escape him in fair flight.—LILFORD (Bournemouth).

The Destruction of Small Birds on the Continent.—It may interest some of your readers to know what becomes of our migratory birds which collect in large flights on the South Coast in September and October. The fields are then covered with Thrushes, Finches, Larks, Linnets and Wagtails, on their way across the Channel to where the "Chasse aux Grives" is eagerly looked forward to by the French sportsman, and where all the small birds find their way to the poulterers. The great majority of our indigenous birds, as also those that come from Norway, as soon as they have crossed the Channel, follow the coast of France to Biarritz, on their way to the warm climates of Spain, Italy, and Africa. I was several winters at Biarritz, and was witness to the great destruction of birds

which takes place on their annual passage. As the result of subdivision of landed property in France, every one or two small fields is held separately by a peasant and his family. These are usually cultivated with Indian corn, haricot beans, and vegetables, and the crops are all off by September. The field is generally a square or a parallelogram, and as soon as it is clear, each man puts up a small hut in one corner, and fixes a long folding clap-net in the middle of his field. Seed is then spread, and tame Finches, Larks or Pigeons, attached by a short string, are placed as decoys. Monsieur le Propriétaire then sits in his hut and waits, keeping a sharp look-out for the flights coming from the north : as soon as he sees them coming he agitates his decoys, and the birds immediately come down to feed and rest, when a pull of the cord encloses ten, twenty, forty, or more at one haul. These are killed and picked clean for the market, and the net re-set. This goes on all day and every day during the period of migration in all the fields in the district, and presumably in most other parts of the country. I used to go round to watch the proceedings, and at every hut I found by the man's side a mound (a foot or more high) of little victims without their feathers. The Finches were the most numerous : Chaffinch, Greenfinch, Hawfinch, Goldfinch, Linnet, and Siskin,—nothing comes amiss to them, and everything finds a ready sale in the market. One man I found picking a Sparrowhawk. I suggested that it was not eatable ; but he said, "With the head and feet cut off, no one would know it from a Pigeon"! After all, considering the vast flights that are moving at these seasons of migration, it is a question whether this partial destruction does more than decimate the different species or sensibly diminish their numbers. I have stood at my window at Biarritz, overlooking the sea, and watched flights of thirty or forty Chaffinches every three or four minutes pass incessantly to the south. In addition to the nets, wherever there are fences or hedges I found them covered with limed twigs, which are visited every day for insectivorous birds. These they have a plan of packing by the dozen, by inserting their necks between a split stick tied at both ends. I was once driving at Cambo, and saw a man with some of these sticks of coloured birds, and thinking they might be rare specimens I bought one in a hurry, and on reaching home found they were Robins and Redstarts ! They take the Stock Dove and Turtle Dove at Biarritz, but the capture of the Wood Pigeon is a special pursuit. Vast flights of our Common Cushat, or Wood Pigeon, migrate south in the autumn through the gorges of the Pyrenees, the inhabitants of the localities having an hereditary vested interest in particular narrow gorges in the mountains through which they pass. These are known as "Palombières." At the proper season nets are spread across these narrow passes from trees on one side to the trees on the other. At the top of a high tree at the side, a boy is stationed provided with a stuffed hawk : he

watches the approach of the Pigeons from the north, and as soon as they are in view throws his hawk in the air, on sight of which they dive down through the gorge, where they are netted. One may judge of the numbers taken by seeing the markets full of them, and these "Palombières" are a valuable possession to their owners. Besides, wherever there are high trees, which the Pigeons frequent for roosting, there are huts built high among the branches, from which they are shot. I will conclude this with a list of birds that I took down from a poulterer and game-dealer's shop in Rome:—Blackbird, Thrush, Linnet, Goldfinch, Robin, Blue Tit, Greenfinch, Hawfinch, Jackdaw, Peewit, Sparrowhawk, Nightjar, Redwing, Blackcap, Red-legged Partridge, Grey Partridge, Jay, Magpie, Siskin, Lark, Wild Goose, Mallard, Teal, Shoveller, Pintail Duck, and Little Bustard. Besides birds, I saw Hare, Roe-deer, Wild Boar, and Porcupine.—E. C. MITTFORD.

[Cf. Waterton's account of the Bird-market of Rome.—ED.]

Early nesting of the Goldcrest.—On March 24th I had a nest of the Goldcrest brought to me in a dead branch of a furze bush that had grown long and straggling in a wood facing the south: it contained seven eggs, showing no evidence of incubation, but the yolk in each adhering to the side, as if they had been some time laid. The finder informed me that when he discovered the nest, on the 14th, it contained four eggs; that on the 20th there were seven, and that the bird was sitting on this number when he took it on the 24th. As we had frost on the night of the 19th, followed by cold wind from the north, it is probable that the vitality of the eggs was then destroyed. I have never hitherto known Goldcrests to breed before the latter half of April, and May and June are the most usual months.—R. J. USSHER (Cappagh, Co. Waterford).

Shoveller nesting in Cumberland.—In his 'Illustrated Manual of British Birds' Mr. Howard Saunders states, of the Shoveller, that "*probably* a few pairs inhabit the marshes on the Cumberland side of the Solway, inasmuch as the bird is known to nest in Kirkcudbrightshire." Mr. Saunders has forgotten that in 1886 I recorded a nest of the Shoveller taken on the Cumbrian Solway in 'The Naturalist,' describing also the young in down. In 1887 we again obtained a nest, and, though none was found in 1888, the old birds bred, and young ones were shot on the marshes with the first days of August. The case is really stronger for us than for the Scottish Solway, because the Scottish evidence rests only on young birds shot when feathered, while we have found the nest twice, and obtained feathered young on several occasions. In fact the Shoveller nests with us in two localities, twelve miles at least apart.—H. A. MACPHERSON (Carlisle).

FISHES.

A Rare Fish on the Norfolk Coast.—I am indebted to Mr. Arthur Patterson, of Yarmouth, for a specimen of a beautiful little fish, *Scopelus*

mülleri (*Maurolicus pennantii*), which he obtained under the following circumstances:—On April 1st, seeing some men drawing a seine-net on the Yarmouth side of the entrance to the river Yare, he stopped to examine the refuse from the net, and amongst other small fry found the subject of this notice, which he says he recognised from his remembrance of the figure in Couch's work. Mr. Patterson very kindly sent the fish to me; but having been roughly handled, it reached me in a very dilapidated condition, and, in order to place the occurrence beyond doubt, I sent it on to Mr. Francis Day, who was good enough to confirm our conclusions. In 1886 Mr. Robert Gray sent me one of these little fishes in spirits, and in capital condition, which he had taken on the 1st August of that year, in lat. $73^{\circ} 12'$ North, long. $1^{\circ} 28'$ West, somewhere to the north-west of Jan Mayen (*cf.* Zool. 1886, p. 131). This specimen I also sent to Mr. Day, who described it in 'Nature' of the 14th Oct. 1886. A fish believed to be of the same species has been found as far south as the Mediterranean; it therefore appears to have a very extensive range, if indeed they are identical, which, judging from the diversity in the figures I have seen, may not be the case, or the difference in appearance may arise from the specimens figured being in more or less perfect condition, owing to their extreme delicacy and the ease with which the scales become detached.—T. SOUTHWELL (Norwich).

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

March 21, 1889.—Mr. CARRUTHERS, F.R.S., President, in the chair.

Messrs. H. B. Hewetson, W. Narramore, W. J. Rabbits, and M. B. Slator were elected Fellows.

Mr. T. Christy exhibited the pod, thirty-six inches in length, of an Apocynaceous plant received from the Gaboon as *Strophanthus*, but believed to be allied to *Holarrhena*.

Prof. Stewart, referring to the specimens of *Noctilio leporinus* exhibited at the last meeting of the Society, stated that he had examined the contents of the stomachs submitted to him by Mr. Harting, and had found without doubt fragments of fish-scales, and fin-rays, and a portion of the lower jaw of a small fish, proving the correctness of the assertions which had been made regarding the piscivorous habits of this Bat.

Mr. W. B. Hemsley furnished a report on the botanical collections made on Christmas Island during the voyage of the 'Egeria.' This included a complete list of the plants collected, with remarks on their general distribution, the author being of opinion that the flora of this island, which lies about 200 miles south of the western end of Java, was more

nearly related to that of the Malayan Archipelago than to that of Australia. Mr. C. B. Clarke, commenting on the author's observations on the buttresses of trees, described some remarkable instances which he had seen of this singular mode of growth. Mr. J. G. Baker, referring to the Ferns which had been collected, noticed their affinities and distribution. Mr. R. A. Rolfe commented on three species of Orchids which had been brought home by this expedition, all of which were new. Mr. Thiselton Dyer, referring to Mr. Lister's report to the British Association on the zoological collections from this island, in which it was stated that the character of the avifauna was Australian, considered that this was not borne out by an examination of the flora, which was decidedly Malayan.

A paper was then read by Mr. R. A. Rolfe, "On the sexual forms of *Catsetum*, with special reference to the researches of Darwin and others." The purport of Darwin's paper (Journ. Linn. Soc. 1862) was to show that *Catsetum tridentatum* had been seen by Schomburgk to produce three different kinds of flowers belonging to the same number of supposed genera, all on the same plant, and that the three represented respectively the male, female, and hermaphrodite states of the species. Mr. Rolfe showed that Schomburgk's remarks applied to two distinct species, *C. tridentatum* and *C. barbatum*, the females of which resembled each other so closely that they were thought to be one and the same, viz. *Monacanthus viridis*. Neither of these, however, belonged to the true plant of that name, which was really the female of another species, namely, *C. cernuum*—a fact hitherto unsuspected. The key of the situation was that the females of several species resembled each other very closely, and to three of them the name *Monacanthus viridis* had been applied.

After some critical remarks by the President and Mr. Bull, a paper by Mr. MacOwan was read on some new Cape plants.

The meeting adjourned to April 4th.

April 4, 1889.—Mr. CARRUTHERS, F.R.S., President, in the chair.

Mr. A. C. Lowe was admitted a Fellow of the Society, and Messrs. T. W. Cowan and Rupert Vallentin were elected.

Mr. D. Morris exhibited a specimen of the hymenopterous insect, *Eulema cayennensis*, concerned in the fertilization of *Coryanthes macrantha* (see Crüger, Journ. Linn. Soc. viii. 129), and obtained from Mr. Hart, of Trinidad. Referring to the illustrations of the structure of the flower given in the 'Gardeners' Chronicle' (xvii. 1882, 593, and xxiii. 1885, 145), Mr. Morris explained the process carried out by the insects, chiefly bees, in removing the pollinia and subsequently attaching them on the stigma. The observations of Crüger had been verified by Mr. Hart in the Botanic Gardens, Trinidad.

Sir Edward Fry exhibited and made some instructive remarks on a

copy of Grisley's 'Viridarium Lusitanicum,' 1661, presented by Linnæus to his pupil Loeffling, the author of the 'Iter Hispanicum.'

Prof. R. J. Anderson exhibited some photographs of educational museum cases in Queen's College, Galway.

A paper was read by Mr. Lister on the Myxomycetes, or Mycetozoa, a group of organisms on the borderland between the animal and vegetable kingdoms, and formerly classed with Fungi. His remarks were illustrated by numerous coloured drawings of representative species, and the author exhibited under the microscope the swarm-cells from the spores of *Amaurochæte* and the streaming plasmodium of *Badhamia*. Attention was especially directed to the mode of feeding of the swarm-cells, and observations made on those of *Stemonitis*, where large bacilli were seen to be caught by pseudopodia projected from the posterior end of the organism, and drawn into its substance and digested. An interesting discussion followed, in which the President, Prof. Marshall Ward, Prof. Howes, and Mr. Breese took part.

A paper was then read by Mr. E. W. Hoyle on the deep-water fauna of the Firth of Clyde, embodying the result of recent investigations. The explored area, which is shut off from the Irish Sea by a submarine plateau extending from the Mull of Cantyre to the Ayrshire coast, contains seven distinct deep-water basins in which the depth exceeds 20 fathoms, and in some cases reaches 80 or 100 fathoms. An account was given of the dredging which had been carried on, with lists of the species obtained at various depths. A discussion followed, in which Messrs. John Murray, W. P. Sladen, and G. B. Howes took part.

The meeting adjourned to April 18th.

April 18, 1889.—Mr. CARRUTHERS, F.R.S., President in the chair.

The Rev. R. Collie was admitted a Fellow of the Society, and Messrs. P. Goiffon, T. W. Shore, and R. W. Scully were elected.

In view of the approaching Anniversary Meeting, the following Auditors were appointed:—Dr. J. Anderson and Mr. Jenner Weir for the Council; Mr. T. Christy and Mr. D. Morris for the Fellows.

The President called attention to a valuable donation of books on Fishes, including the celebrated work of Bloch, recently presented to the Society's Library by Mr. Francis Day, C.I.E., F.L.S., who, he regretted to say, was lying seriously ill at Cheltenham, upon which a cordial vote of sympathy and thanks for the gift was unanimously accorded.

Mr. J. R. Jackson, Curator of the Museum, Kew Gardens, exhibited specimens illustrating the mode of collecting at Ichang, China, the varnish obtained from *Rhus vernicifera*, so largely used by the Chinese and Japanese for lacquering. He also exhibited some Chinese candles made from varnish seed-oil.

On behalf of Mr. Henry Hutton, of Kimberley, some photographs were

exhibited, showing the singular parasitic growth of *Cuscuta appendiculata* on *Nicotiana glauca*.

Dr. Cogswell exhibited specimens of vegetables belonging to four different families of plants, to illustrate the symmetrical development of the rootlets.

Prof. Martin Duncan exhibited under the microscope, and made some remarks upon, the *Sphæridia* of an Echinoderm.

Dr. Masters gave a summary of a paper "On the Comparative Morphology and Life-history of the *Coniferae*," a review of the general morphology of the order, based upon the comparative examination of living specimens in various stages of development. These observations, made in various public and private "pineta," supplemented by an examination of herbarium specimens, demonstrated the utility of gardens in aid of botanical research. The mode of germination, the polymorphic foliage, its isolation or "concrecence," its internal structure, the arrangement of the buds, the direction and movements of the shoots, were all discussed. In reference to the male and female flowers, the author described their true nature, tracing them from their simplest to their most complex or most highly differentiated condition, and showed that, so far as known, the histological structure and development were essentially the same throughout the order. Various special forms, such as the needles of *Pinus*, the phylloid shoots of *Sciadopitys*, and the seed-scales of *Abietinae* were described, and their significance pointed out. The phenomenon of Enation, with the correlative inversion of the fibro-vascular bundles in such outgrowths was considered in relation to the light it throws upon certain contested points in the morphology of the order. The chief teratological appearances noted in the order were detailed and their significance discussed. The various modifications were shown to be purely hereditary, or partly adaptive, and dependent on permanent or independent arrest, excess, or perversion of growth and development, and to various co-relative changes. Lastly, the polymorphic forms of the so-called genus *Retinospora* suggested that in studying them we might be watching the development and fixation of new specific types.

The meeting adjourned to May 2nd.

ZOOLOGICAL SOCIETY OF LONDON.

March 19, 1889.—Prof. FLOWER, C.B., LL.D., F.R.S., President, in the chair.

The Secretary read a list of the fishes collected at Constantinople and sent to the Society by Dr. E. D. Dickson. The species were sixty-six in number, and had been determined by Mr. G. A. Boulenger.

Mr. Tegetmeier exhibited a female Gold Pheasant in male plumage, and a curiously distorted pair of horns of the Ibex of Cashmir.

The Rev. A. H. Cooke read a paper on the position of the land-shells of Australia and the adjacent islands, commonly referred to the genus *Physa*, which it was shown (mainly from an examination of the *radula*) were really more nearly allied to the genus *Limnæa*. Mr. Cooke proposed to refer those species to the genus *Bulinus*, established by Adanson in 1757.

Mr. G. A. Boulenger read notes on some specimens of Lizards belonging to the Zoological Museum of Halle, which had been sent to him for examination. To these notes were appended revised descriptions of two Lizards from the Argentine Republic—*Gymnodactylus horridus* and *Urostrophus scapulatus*.

A communication was read from Prof. W. N. Parker, containing an account of the occasional persistence of the left posterior cardinal vein in the Frog. This condition, abnormal in the Frog, was shown to be essentially normal in *Protopterus*.

A communication was read from Mr. J. Douglas Ogilby, containing notes on some fishes new to the Australian fauna.

Mr. Oldfield Thomas read a paper giving the description of a new Bornean Monkey belonging to the genus *Semnopithecus*, obtained by Mr. Charles Hose on the north-west coast of Borneo. The author proposed to name it *Semnopithecus hosei*, after its discoverer.

April 2, 1889.—Prof. FLOWER, C.B., LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of March, and called attention to a specimen of the Manatee, *Manatus australis*, purchased March 2nd, being the second example of this Sirenian obtained alive by the Society; to an oriental Phalanger, *Phalanger orientalis* var. *breviceps*, presented by Mr. C. M. Woodford, of Sydney; and to a specimen of Owen's Apteryx, *Apteryx oweni*, presented by Capt. C. A. Findlay.

Mr. Smith-Woodward exhibited and made remarks on a maxilla of the early Mesozoic Ganoid *Saurichthys* from the Rhætic formation of Aust Cliff, near Bristol.

A communication was read from Mr. W. K. Parker on the osteology of *Steatornis caripensis*. The conclusion arrived at as regards the affinities of this isolated form of birds was that *Steatornis* is a waif of an ancient avifauna, of which all the near allies are extinct, and the *Podargus* of Australia is its nearest surviving relative.

Mr. Oldfield Thomas read some preliminary notes on the characters and synonymy of the different species of Otter. The author gave a revised synonymy of the four species of *Lutra* recognised as belonging to the Palearctic and Indian Regions, and of the two found in the Æthiopian

Region. The American Otters, for want of a larger series of specimens, could not at present be satisfactorily worked out.

Mr. E. T. Newton read a paper entitled "A Contribution to the History of Eocene Siluroid Fishes." Mr. Newton observed that spines of Siluroid Fishes from the Bracklesham Beds were described by Dixon, in his 'Fossils of Sussex' (1850), and referred to the genus *Silurus*. Mr. A. Smith-Woodward had recently shown good reason for referring these specimens, and certain cephalic plates from the same horizon, to the tropical genus *Arius*. The greater part of a skull, from the Eocene Beds of Barton, in the Museum of the Geological Survey, confirmed the latter generic reference. Its close resemblance to a skull of *Arius gagorides* in the British Museum left no room for questioning their generic relationship, while at the same time the fossil differed from any known species of *Arius*. The fortunate discovery of one of the otoliths within the fossil skull, and its resemblance in important points to that of *A. gagorides*, still further confirmed this determination. Some other otoliths from Barton, and one from Madagascar were also referred to the genus *Arius*.

Mr. A. Smith-Woodward read a note on *Bucklandium diluvii*, a fossil from the London Clay of Sheppey, noticed by König, and hitherto not satisfactorily determined. It was shown that this fossil was a portion of the skull of a Siluroid Fish allied to the existing genus *Auchenoglanis*.

A communication was read from Mr. H. W. Bates, containing descriptions of new species of the coleopterous family *Carabidæ*, collected by Mr. J. H. Leech in Kashmir and Baltistan. A second communication from Mr. Bates gave descriptions of some new species of the coleopterous families *Cicindelidæ* and *Carabidæ*, taken by Mr. Pratt at Chang Yang, near Ichang, in China.—P. L. SCLATER, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

April 3, 1889. — Mr. F. DU CANE-GODMAN, M.A., F.R.S., Vice-President, in the chair.

Messrs. A. Cant, C. Cave, N. F. Dobrée, J. Harrison, S. L. Mosley, and B. G. Nevinson, were elected Fellows.

Mr. Osbert Salvin exhibited specimens of *Ornithoptera trojana*, Staud., and *O. plateni*, Staud., received from Dr. Staudinger, and obtained in Palawan, an island between Borneo and the Philippines. He remarked that *Ornithoptera trojana* was allied to *O. brookiana*, Wall.

Mr. R. M'Lachlan exhibited, and made remarks on, seven examples of *Aeschna borealis*, Zett., a little-known species of European Dragonfly. He said that some of the specimens were captured by himself at Rannoch, Scotland, in June, 1865, when he was accompanied by Dr. Sharp and the

late Mr. E. C. Rye. The other specimens were taken in Luleå, North Sweden, and the Upper Engadine (5000—6000 ft.), in Switzerland.

Mr. W. H. B. Fletcher exhibited specimens of *Agrotis pyrophila* from various localities, including two from Portland, three from Forres of a smaller and darker form taken by Mr. Salvage last year, and a melanic specimen from Stornoway at first supposed to belong to *A. lucerneæ*, but which, on closer examination was seen to be referable to this species. He also exhibited series of *Triphana orbona* from Stornoway and Forres, and *T. subsequa* from Forres and the New Forest. The specimens of *T. subsequa* from Forres were more distinctly and richly marked than those from the New Forest, and were also rather more variable in colour.

Dr. Sharp exhibited specimens of *Proculus goryi*, Kaup, found by Mr. Champion in Guatemala, prepared to show the rudimentary wings under the soldered elytra. Dr. Sharp called attention to the existence of a peculiar articulated papilla at the base of one of the mandibles; and he also showed sections of the head of *Neleus interruptus* displaying this papilla, as well as the articulated teeth on the mandibles.

The Rev. Canon Fowler exhibited specimens of *Agapanthia lineatocollis*, Don, and remarked that they were able to produce a distinct stridulation by the movement of the head against the prothorax, and of the hinder part of the prothorax against the mesothorax; they were also able to produce an unpleasant scent. He further remarked that Dr. Chapman had lately informed him that *Erirrhinus maculatus*, F., had the power of stridulating strongly developed. He also exhibited a specimen of *Barynotus*, taken in Norfolk, which was apparently an abnormal example of *B. obscurus*.

Mr. Edward Saunders exhibited, on behalf of Mr. G. A. J. Rothney, in illustration of his paper on Indian Ants, specimens of the following:—*Camponotus compressus* and fragments of *Solenopsis geminatus* destroyed by it; *Camponotus* sp.?, with a mimicking spider (*Salticus* sp.); *Pseudomyrma bicolor*, with its mimicking *Salticus*, and a new species of *Rhinopsis*, viz. *ruficornis*, Cameron, also found with it, and closely resembling its host; *Diacamma vagans*; *Holcomyrme indicus*, with specimens of the grain which it stores and the chaff which it rejects; and *Aphænogaster* sp., with the pieces of *Mimosa*, &c., with which it covers its nest.

Mr. G. A. J. Rothney communicated a paper entitled "Notes on Indian Ants."

Mr. Lionel de Nicéville communicated a paper entitled "Notes regarding *Delias saraca*, Moore, a Western Himalayan Butterfly."

Capt. H. J. Elwes communicated a note in support of the views expressed by Mr. de Nicéville in his paper.—H. GOSS and W. W. FOWLER, *Joint Hon. Secs.*

NOTICES OF NEW BOOKS.

The Naturalist in Siluria. By Captain MAYNE REID, Author of 'The Scalp Hunters,' 'The Death Shot,' &c. Post 8vo, pp. 240. London: Swan Sonnenschein & Co. 1889.

ON glancing at the title of this volume and its contents, two things, in the absence of any explanation from the publishers, strike us as somewhat remarkable: first, that a collection of serious essays on Natural History should emanate from a writer whose name has been known to us since our school-boy days as the author of sensational novels, and, secondly, that he should be writing on Natural History topics in 1889, when we happen to know that he died in October, 1883. Some additional words seem wanting on the title-page, such, for instance, as "Posthumous Essays, by the late" or (if it be the fact) some indication that this is not the first edition which has appeared. The unwary reader is allowed to suppose that this is a new book, or finds himself, as we do, in a dilemma. Not a word of explanation is given in the "Introduction," and "Preface" there is none. And yet, taken seriously, the book is worth notice, not on account of its tasteful "get up," or illustrations, many of which are execrable as engravings, and erroneous in their teaching, but because it bears on many pages the stamp of out-door observation by a resident in an English rural district which is described and named.

"My residence," says the author, "is in *Siluria*, contiguous to that singular and symmetrical 'valley of elevation' known as Woolhope. From the summit of a high wooded hill, Penyard, which rises abruptly in rear of my house, I can look over the whole series of Upper Silurian rocks, from the northern edge of their upcast at Mordiford, near the city of Hereford, to their southern projection by Gorstley, in Gloucestershire. There they dip under the Devonian or Old Red Sandstone, again to show upon the surface a little further south, in the smooth rounded dome of May Hill, standing solitary with its crest of Scotch firs conspicuous from afar. . . . Westward, and in fact all round me, extends the Old Red Sandstone, the characteristic rock of Herefordshire, as also the adjacent county of Monmouth. . . . Near by, on the west,

lies the valley of the Wye, rich in drifts of geological interest, and eastward the wide and more extended valley of the Severn, itself an ancient sea-bed. Turning southward, I have the Forest of Dean before my face, a tract of country as singular as it is celebrated."

So much for the district in which the author's observations have been made; now for the notes themselves. We have read most of the book, and feel bound to say that, setting aside certain inconsistencies (*e. g.*, pp. 195, 198), repetitions (pp. 27—29, 67—70, 77—82, 80—91), the rehabilitation of ancient and marvellous tales (pp. 163, 236), and the occasional misapprehension of real facts for want of reading, there is much that will repay perusal, either because it is confirmatory of the statements of others on points of interest, or because the personal observations of the author are in a sense new.

Referring to the presence of the Rock Dove, *Columba livia*, in Herefordshire, he writes (p. 27—29):—

"Mr. W. Lloyd, a local naturalist [of Kington], reports it as breeding on the Stanmer Rocks, a basaltic upheaval near the borderline between the counties of Hereford and Radnor—altogether away from the sea. It has also a nesting-place in the cliffs overhanging the Wye, by the celebrated Symond's Yat, and all down through Monmouthshire to Caldy Island. There, *à fortiori*, they should be found, since these cliffs are nearer to its known *habitat* on the sea-coast."

(*Cf.* Bull, 'Birds of Herefordshire,' 1888, p. 176).

The Great Black Woodpecker, *Picus martius*, turns up again (p. 46), and is characterised as "so rare that many ornithologists even doubt its existence in any part of England."

"It has been observed, however, and in my own grounds in South Herefordshire, myself the observer. In the summer of 1880 [here we get a date] a pair passed over my head, one flying behind the other at an interval of a hundred yards or so. They lit in a tall linden tree near the house, only to stay in it for a few seconds; then continued their up and down flight towards some hanging woods beyond, where I lost sight of and never saw them again."

He then alludes to Mr. Chapman's observation of this species in the same county, as mentioned in Bull's 'Birds of Herefordshire' (p. 92), and concludes, "There can be no doubt, therefore, of the Great Black Woodpecker occasionally visiting the

Welsh bordering shires, if it be not a permanent resident in them."

Referring to the Chaffinch, and to the alleged separation of the sexes during winter, he says:—

"I have been observing the Chaffinch, one of our most familiar birds, for several years throughout all the winter and summer, and have never known the sexes so to separate. In all cases where there were flocks, the cocks and hens seemed to be in about equal numbers, or at least no difference worth noting; and Mr. Knapp, the author of 'The Journal of a Naturalist,' bears similar testimony of them. He says:—'With us the sexes do not separate at any period of the year, the flocks frequenting our barn-doors and homesteads in winter being composed of both.' Mr. Knapp's observations were made in Gloucestershire, on the left bank of the Severn; mine chiefly in the valley of the Wye. So if those of Linnaeus and Gilbert White be correct, then the habits of the birds in these western shires must differ from what they are elsewhere, even in our own islands—a somewhat singular circumstance."

He suggests that the flocks seen by Gilbert White were supposed to be "almost all hens," because the young cock birds of the year had not at that season attained their characteristic plumage.

Referring to the Selborne naturalist's statement that the Carrion Crow goes in pairs the whole year round, he says:—

"This is an error that, with many more in relation to the habits of this bird, has been perpetuated by Yarrell and most other English ornithologists, so as to become the stereotyped phraseology of the encyclopædias. I am able to state for certain that the Crow never goes in pairs, save during the days of nest-building. If seen thus at any other period of the year, it is because the nest has been robbed, or the brood in some way destroyed, leaving the bereaved parent birds alone for the length of another twelvemonth. But when successful in hatching and bringing up of their young, there is no separation nor pairing. Instead, the whole family keeps together—though apart from all others—throughout the summer, autumn, and winter, and till nesting time in spring. To verify this habit, I have been for years observing the behaviour of this bird, and can now vouch for it as a fact. My opportunities are excellent, as the Carrion Crow is common in my neighbourhood, more than one family having their cantonments near."

This may be all very true of the district in which the above observations were made, but it does not follow that it is of universal application. Indeed we feel satisfied—from what has been stated by other good observers—that it is not. Circumstances alter cases.

Turning to the notes on Mammalia which are scattered throughout the book, we observe that the Dormouse occurs in Herefordshire in Penyard Wood (p. 102), where also, as in the Forest of Dean, the Squirrel is common:—

“One of the woodwards of the Forest of Dean informs me that in the larch plantations over which he had wardship for some years past, he had now and then noticed large branches and even tops of the trees themselves broken off by the wind. Some of them were of large size, thick as a man's thigh; and for long he could not tell why Eolus was dealing such wholesale destruction, for there were acres upon acres of the larch woods strewed with the dead and broken branches. He learnt at length, discovering the cause to be Squirrels. Their mode of procedure was by peeling off the bark, not only in isolated patches, but in broad rings all round the branch or bole of the tree,—their object, of course, being to eat it,—and thus naturally killing so much of the branch as was above, which, after a time decaying, gave way before the wind.”

The author states that “it is rare to meet with white Stoats so far south as Gloucestershire, though instances have occurred, some even in Cornwall” (p. 120). He mentions two which were taken in the parish of Flaxley, Gloucester, near the Forest of Dean boundary, one of which was “nearly as white as a true Arctic Ermine.”

Some experiments are detailed (pp. 128, 129) to show that the Mole will not eat “wire-worms” by choice, as has been alleged, but will greedily devour earthworms, which are believed to be its principal food.

A chapter on Wild Cats, in which the author hints at the possibility of one “having found its way into Herefordshire from the Welsh mountains, following the course of the stream downward, perhaps here and there making temporary sojourn,” closes with the remark (p. 146) that, “among the wooded ‘dingles’ where the Wye has some of its sources—very fastnesses—this now rare animal is believed still to have existence.”

Badgers are reported to be occasionally met with, notably in the hanging woods of Penyard Hill and on the slope of Howle Hill, a lofty eminence overlooking the Wye, some four miles below the town of Ross, where one was captured weighing twenty-seven pounds,—“not one of the largest,” says our author, “for in my notes I have record of many weighing at least a third more.” A story is told (p. 190) of a Fox and Badger being found by terriers in the same drain, and beside the Badger lay a *china egg*, one of those in common use as “nest-eggs,” which no doubt had been taken from a farm close by, and which, notwithstanding sharp teeth and powerful jaws, had proved “a nut too hard to crack.”

Writing of the occurrence of the Marten, which is still found occasionally in the district,—Siluria,—the author quotes an interesting letter from “a friend resident in a western shire,” whose uncle, a master of hounds for forty seasons “used to hunt Marten-cats very early in the season with the young hounds and a few old ones to teach them, as he said, to ‘pack’ well.” This correspondent says:—

“The scent of a Marten-cat is so strong that it is hardly possible for hounds to lose it; and my uncle used to say that it drew them together and taught them to pack well, so that when they began fox-hunting later on it almost saved the expense of an extra whip. Foxes were so scarce in those days that we could not afford to go cub-hunting in the early part of the season, or we should have had many ‘blank’ days before the end. Of course, now that foxes are more plentiful, young hounds can be entered to the legitimate scent at the beginning. We used to find the Marten-cats in large coverts, and it was a common occurrence for one to give the hounds a run of three or four hours in a thick cover, the animal every now and then taking to a tree. From this it would be dislodged by some one climbing up to it, when it would run along a bough to the outside end, then drop into the cover, and away again, although perhaps twenty couple of hounds might be baying at it under the tree. I have seen one ‘treed’ at least a dozen times before it was killed.”

“I question the correctness of my friend’s conjecture as to the Marten being extinct in the shire of which he speaks. Indeed, I have evidence of its existence in that county, though not in his neighbourhood. In my own, I am happy to say, it is far from being extinct, many recent cases of its capture having come to my knowledge. Only

six years ago a poacher of my acquaintance killed a beech, or as sometimes called, 'stone,' Marten within less than a mile from my house. He found it while 'rabbiting,' his ferrets having run it out of a hole in a hedge-bank, and far away from woods. No doubt it had made an excursion thither on the same business as the poacher himself.

"But in many of the fastnesses around the Forest of Dean I know that Martens, if not plentiful, are yet in goodly numbers. One of the Forest-keepers tells me that, five or six years ago, he used to see many, and shoot many, too, in the High Meadow Woods—a tract of the Forest which overhangs the River Wye; and there is the skin of one stuffed and mounted in the house of a farmer in that neighbourhood, which very recently fell to a gamekeeper's gun. Again, a gipsy of my cognizance, who tents in all parts of the Forest, tells me that he and his tribe often meet with 'Marten-cats,' which he affirms to be far from uncommon in the woods near Blakeney and Lydney, where there is some rather heavy timber. He says they vary much in colour and markings—a remarkable fact, if fact it be."

In 'The Zoologist' for 1886 (p. 240) Mrs. Attwood Mathews, of Pontrilas Court, Hereford, has noticed the recent occurrence of the Marten in the county in which she resides, and the following year (Zool. 1887, p. 190) Mr. Cambridge Phillips reported the appearance of one near Brecon in September, 1886. He regards it as a rare animal in Wales at the present day.

The illustrations to this volume, as we have said, are for the most part very poor. The best are copied from Bewick, the remainder being from different sources, and several of them wrongly lettered. For example, the bird figured on p. 19 as the Rock Dove, *Columba livia*, is the Stock Dove, *C. ænas*; that figured as the Nuthatch, *Sitta cæsia* (p. 55), is the Nutcracker, *Nucifraga caryocatactes*. Of the two birds figured as Herons (p. 232) one is a Bittern, and none of the half-dozen warblers figured on p. 177 are named.

The absence of dates, or precise reference to the time of year at which certain observations were made, is a serious drawback in estimating their value. Notwithstanding these defects, the extracts which we have given above sufficiently show that the subject matter of the book is good enough to have deserved better treatment than it has received at the hands of the printer and publisher.

